

ABSTRACT OF THE DISCLOSURE

An eta-phase-free cemented carbide insert with improved surface hardness and wear resistance containing WC, and possibly cubic phases of a carbide and/or carbonitride, in a binder phase of Co, Ni, Fe or a combination thereof, with a binder phase gradient in the surface and near surface regions, is disclosed. The nominal binder phase content in the insert is 3 - 20 weight %. The surface, and near surface cobalt content is 50 - 100% of the binder phase content of the inner portion of the insert. The insert is formed by standard sintering practices, followed by the chemical removal of the binder phase from the surface and near surface regions of the insert. The insert is then heat treated at a temperature of 1300 - 1350°C in a carburizing atmosphere, for a time of 5 - 400 minutes to cause diffusion of the binder phase from the interior into the binder depleted surface regions.